

Application Note

E2 EtherNet/IP Drive Complete Setup with Rockwell Studio 5000

> www.hiwinmikro.tw MD46UE01-2412_V1.0

Revision History

The version of the manual is also indicated on the bottom of the front cover.

MD46UE01-2412_V1.0



Release Date	Version	Applicable Product	Revision Contents
		E2	
Dec. 31 st , 2024	1.0	EtherNet/IP	First edition.
		Drive	

Related Documents

Through related documents, users can quickly understand the positioning of this manual and the correlation between manuals and products. Go to HIWIN MIKROSYSTEM's official website \rightarrow Download \rightarrow Manual Overview for details (<u>https://www.hiwinmikro.tw/Downloads/ManualOverview_EN.htm</u>).

Preface

This manual explains the operation of PLC software Studio 5000 when E2 EtherNet/IP drive is used with Allen-Bradley (Rockwell) PLC. The contents in this manual, including project creation of PLC, communication setup, parameters setup, creation and operation of function blocks, are arranged in accordance with the procedure of complete machine setup. For further understanding of E2 EtherNet/IP drive, please refer to "E2 Series Servo Drive EtherNet/IP Communication Command Manual."

Specifications of Software/Hardware

Name	Version of Software/Firmware
	Software (Thunder): 1.11.6.0 or above
E2 EtherNet/IP Drive	Firmware: 3.11.6 or above
	EDS file: HIWINMIKROSYSTEM_ED2F_20240418 or above
Allen-Bradley PLC	Software (Studio 5000): V34.01.00 or above
(CompactLogix 5380)	Firmware: V34.011 or above

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1. Communication and module setup

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1.1 Create new project

1. Open Rockwell Studio 5000 and click New Project.



Figure 1.1.1

2. Select controller model, key in project name, and select archive path. Then, click Next.

🗿 New Project							?	×
Project Types					Search			×
Architect	⊿ Co	mpa	ctLogix™ 538() Contro	oller			
		506	9-L306ER	Com	oactLogix™	5380 Controller		
💕 Logix		506	9-L306ERM	Com	pactLogix™	5380 Controller		
		506	9-L3100ERM	Com	pactLogix™	5380 Controller		
		506	9-L310ER	Com	oactLogix™	5380 Controller		
		506	9-L310ERM	Com	oactLogix™	5380 Controller		
		506	9-L310ER-NSE	Com	actLogix™	5380 Controller		- 1
		506	9-L320ER	Com	actLogix™	5380 Controller		
		506	9-L320ERM	Com	actLogix™	5380 Controller		
		506	9-L320ERP	Com	actLogix™	5380 Controller		
		506	9-L330ER	Com	actLogix™	5380 Controller		
1		500	0.10005014	~	ти	5000 C + II		~
	Name:	:	E2_AC					
	Locatio	on:	C:\Users\supe	er99056	\Document	ts\Studio 5(~	Brow	/se
			Cancel		Back	Next	Fin	ish

Figure 1.1.2

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Communication and module setup

3. Select controller version and click **Finish**.

쥥 New Project		?	×
5069-L330ERM (E2_AC	CompactLogix™ 5380 Controller		
Revision:	34 ~		
Security Authority:	No Protection v		
	Use only the selected Security Authority for authentication and authorization		
Secure With:	Iogical Name <controller name=""></controller>		
	Permission Set		
Description:			
	Cancel Back Next	Fini	sh

Figure 1.1.3

4. The new project will be successfully created.

Logix Designer - E2 AC (5069-L330ERM 34.11)				- <i>6</i> ×
File Edit View Search Logic Communica	ations Tools Window Help			
N 🖕 🖬 🖨 🗶 n n 🗩 e 🗌	v to to # The he is the	at in a co		
RUN				
Energy Streams	8 å			<u> </u>
I/O Offline . No Forces	s ▶_ No Edits 🔒	Favorites Add-On PlantPAx Safety Alarms Bit TimerN	counter Input/Output Compare Compute/Math Move/Logical File/Misc. Fi	e/S
Controller Organizer 👻 🖗 :	×			
e •=				
Controller E2_AC	<u>^</u>			
Controller lags				
Power-Up Handler				
🔺 🛁 Tasks				
MainTask				
Unscheduled				
🔺 🛁 Motion Groups				
Ungrouped Axes				
Alarm Manager				
Add-On Instructions				
a 🛁 Data Types				
Tati User-Defined				
Add-On-Defined				
Predefined				
P Im Module-Defined				
The Logical Model				
▲ 🔄 I/O Configuration				
Δ = 5069 Backplane				
▲ ♣ A1, Ethernet				
Turn 5060 1 2205014 Common tail ania 71 5200	-			
Description	•••			
Slot 0				
Major Fault	-			
Wind Faux				
	Error			- " *
		0		
	0 Errors A 0 Warning	0 U Messages		Search
	>			
Te Controller Organizer				
🔊 Search Results 🚜 Watch				
Raady				Communication Software: Factory/Talk Liny

Figure 1.1.4

1.2 IP setting

1. Click "Who Active" icon in the main window.



Figure 1.2.1

2. Select the controller setting icon under the USB interface.



Figure 1.2.2

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Communication and module setup

3. Based on the connecting configuration of network cable, select **Port**, select **Manually configure IP settings**, and complete the settings of **Physical Device IP Address** and **Subnet Mask**. Then, click **Apply**.

		MB0364!Backplane\16	
■ Who Active (FactoryTalk Linx)	- 🗆 X	Internet Protocol Port Configuration IP Mode CIP Security LLDP Port: A1 Manually configure IP settings Ondate IP settings Onda	•
	Go Online Upload Download Update Firmware Close Help	O Obtain IP settings automatically using DOCP O Obtain IP settings automatically using DHCP Physical Device IP Address: Subnet Mask: 192 . 168 . 1 . 111 255 . 255 . 0 . 0 Gateway Address: Primary DNS Server Address: 0 . 0 . 0 . 0 Primary DNS Server Address: 0 . 0 . 0 . 0 Host Name:	
Biowsing - node A2, EtherNet 5 found Zoom: 100% Path: Backplane\16 Path in Project: <none></none>	Set Project Path Clear Project Path	Refresh Apply	00%

Figure 1.2.3

1.3 Install EDS file

1. Click **Tools**→**EDS Hardware Installation Tool** in the main window to install EDS file.



Figure 1.3.1

2. Start installing EDS file. Click Next.

Rockwell Automation's EDS Wiz	ard	×
The second	Welcome to Rockwell Automation's EDS Wizard	
	The EDS Wizard allows you to:	
	- register EDS-based devices.	
	- unregister a device.	
	- change the graphic images associated with a device.	
	- create an EDS file from an unknown device.	
	- upload EDS file(s) stored in a device.	
	To continue click Next	
	下一步(N) > 取消	

Figure 1.3.2

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E2 EtherNet/IP Drive Complete Setup with Rockwell Studio 5000

Communication and module setup

3. Select **Register an EDS file(s)** and click **Next**.

Rockwell Automation's EDS Wizard	×
Options What task do you want to complete?	
 Register an EDS file(s). This option will add a device(s) to our database. 	
C Unregister a device. This option will remove a device that has been registered by an EDS file from our database.	
C Create an EDS file. This option creates a new EDS file that allows our software to recognize your device.	
C Upload EDS file(s) from the device. This option uploads and registers the EDS file(s) stored in the device.	
	< 上一步(B) 下一步(N) > 取満

Figure 1.3.3

4. Select **Register a single file** and click **Browse...** to select the source path for EDS file.

Rockwell Automation's EDS Wizard	×
Registration Electronic Data Sheet file(s) will be added to your system for use in Rockwell Automation applications.	
Register a single file Register a directory of EDS files Look in subfolders Named: Browse Browse If there is an icon file (ico) with the same name as the file(s) you are registering then this image will be associated with the device. To perform an installation test on the file(s), click Next	
< 上一步(8) (1) > (1	取消

Figure 1.3.4

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The source path for E2 EtherNet/IP drive's EDS file is C:\Thunder\doc\EDS Files.



Figure 1.3.5

Select the EDS file with the latest firmware version and click Next.

Rockwell Automation's EDS Wizard	×
Registration Electronic Data Sheet file(s) will be added to your system for use in Rockwell Automation applications.	A C
☞ Register a single file	
C Register a directory of EDS files 🛛 Look in subfolders	
Named:	
C:\Thunder\doc\EDS Files\HIWINMIKROSYSTEM_ED2F_20240712.eds Browse Browse	
If there is an icon file (ico) with the same name as the file(s) you are registering then this image will be associated with the device.	
To perform an installation test on the file(5), click Next	
< 上一歩(B) ×一歩(N) > 目	取消

Figure 1.3.6

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Communication and module setup

5. Confirm the EDS file to be loaded and click **Next**.

Rockwell Automation's EDS Wizard	×
EDS File Installation Test Results This test evaluates each EDS file for errors in the EDS file. This test does not guarantee EDS file validity.	
Installation Test Results └✔ c`\thunder\doc\eds files\hiwinmikrosystem_ed2f_20240712.eds	
<u>View file</u> < 上一步(8) 下一步(N) > 思	又消

Figure 1.3.7

6. After the EDS file is loaded, E2 drive will be recognized. Click **Next**.

Rockwell Automation's EDS Wizard	×
Change Graphic Image You can change the graphic image that is associated with a device.	
Product Types	
Change icon	
< 上一参(6)	下一步(N) > 取消

Figure 1.3.8

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Communication and module setup

7. After confirming that E2 drive is recognized, click **Next**.

Rockwell Automation's EDS Wizard	×
Final Task Summary This is a review of the task you want to complete.	
Vou would like to register the following device. ED2F servo drive	
< 上一歩(8) 下一歩(N) > 見	(消

Figure 1.3.9

8. The EDS file is successfully installed.



Figure 1.3.10

1.4 Set Thunder's EtherNet/IP setup window

1. Select **Tools** in Thunder's menu bar and click **EtherNet/IP setup** to open "EtherNet/IP setup" window.



Figure 1.4.1

2. Set IP address, set Subnet mask, select IP mode as **Static**, and click **Apply**. If the information in "Status" column is the same as that in "Configuration" column, the setting is done.

Note: Set drive's IP address and controller's IP address in the same domain, or communication cannot be normally established.

😏 EtherNet/IP setup			- 🗆 X
Network Ext. I/O data			
- Configuration		- Status	
IP address	192 . 168 . 0 . 50	IP address	192 . 168 . 0 . 50
Subnet mask	255 . 255 . 255 . 0	Subnet mask	255 . 255 . 255 . 0
Default gateway	0.0.0.0	Default gateway	0.0.0.0
IP mode :	Static 🗸	IP mode	Static
Apply		L	

Figure 1.4.2

1.5 Connect device to PLC

1. Click "Who Active" icon in the main window to select the way of connecting device to PLC.



Figure 1.5.1

2. Select the controller under the USB interface and click **Go Online**.



Figure 1.5.2

HIWIN. MIKROSYSTEM MD46UE01-2412

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Communication and module setup

3. Click Download.

Connect	ed To Go Online							×
Options	General Date/Tim	e Major Faults	Minor Faults	Project	Nonvolati	ile Memory		
Conditi	on: The open project	t doesn't match th	e project in the	controlle	r.			
Connec	cted Controller: Controller Name: Controller Type: Comm Path: Serial Number:	E2_AC_USB 5069-L330ERM Backplane\16 7074ADB6	/A CompactLo	gix ^{***} 538	0 Controlle	r		
Offline	Security: Project:	No Protection						
Unine	Controller Name: Controller Type: File: Serial Number: Security:	E2_AC 5069-L330ERM s\super99056 <none> No Protection</none>	CompactLogio	r''' 5380 C itudio 500	Controller 10\Projects	s∖E2_AC.ACD		
	Online edits perfo	ormed during uplo online edits durin	ad may preven g upload.	t upload fr	rom comple	eting.		
			[Downloa	ad Se	elect File	Cancel	Help

Figure 1.5.3

4. Click Download in "Download" window.



Figure 1.5.4

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Communication and module setup

5. If the statuses in the main window light up, the connection is successfully built.

e Edit View Search Logic Communicat	ons Tools Window Hel	p								
シペ 合 単 美 単 単 二	v 🏞 🟞	🔎 📴 🌬 🕞	6 🖄 🕫 🛍 📽 📽							
Run Mode										
Energy Storage OK	h No Edite		Favorites Add-On	Alarms Bit Timer/C	counter Input/Output Compar	e Compute/Math Move	s/Logical File/	Misc. File/Shift Sequencer F		
roller Organizer	MainProgram - MainPro	suting / Program	n Parameters and Local Taos - Ma	inProgram × 🧔 🕫	ontroller Tear - E2 AC(contro	llet)				
	a MainProgram - Mainke	Filipian	in Paraliteters and Local rags - Ma		ontroller rags - c2_Ac(contro	ilei)		inter Heren Oken		
Controller F2 AC	Scope: 5 MainProgram	Show: All Tags					✓ T _* ^D		-	
Controller Tags	Name 📰 🔺	Usage Va	lue 🔹 Force Mask	 Style 	Data Type	Description	Constant		Properties	
Controller Fault Handler	hMethod	Local	33	Decimal	DINT				말: 및4 /과 t+ Exte	nded Properties
Power-Up Handler	hMSF	Local	{}	{}	H_MSF	HIWIN MIKROSYSTE			∡ General	
Tasks	▶ hMSG_Read	Local	{ }	{}	MESSAGE				Name	hWriteValue
 Main lask Main Program 	hMSG_Write	Local	{}	{}	MESSAGE				Description	
Parameters and Local Tags	▶ hMSO	Local	{}	{}	H_MSO	HIWIN MIKROSYSTE			Usage	Local
MainRoutine	hOutputData	Local	{}	{} Decimal	INT[32]				lype Aliar For	Base
iii Unscheduled	hParm NO	Local	8448	Decimal	INT				Base Tag	
Motion Groups	hParm SubINDEX	Local	0	Decimal	SINT				Data Type	DINT
Ungrouped Axes	b bParmRead Single	Local	()	1.)	H ParmRead Single	Read a HIWIN MIKRO			Scope	MainProgram
∩ Alarms	h hDame)Weite Geale	Level	()	()	11 December 20 Carela	Moles - LUMINI MIKED			External Access	Read/Write
Q. Alarm Definitions	P nPannwrice_single	Local	()	17	H_Paintwrite_single	WHILE & PHYNIN WINDS			Style	Decimal
Assets	P nPosition	Local	0	Decimal	DINI				Constant	No
Logical Model	P hReadValue	Local	1000	Decimal	DINI				Kequired	
0 Configuration	hReadValue_Real	Local	0.0	Float	REAL				Alarms	0
5009 Backplane 5009 Backplane 5009 Backplane 5009 Backplane	hSearchSwitchSpe	Local	83886080	Decimal	DINT				> Data	v
A1, Ethernet	hSearchZeroSpeed	Local	8388608	Decimal	DINT				Produced Connecti	on
5069-L330ERM E2_AC	hSetRelativeMove	Local	0	Decimal	BOOL				Consumed Connect	ion
E2 E2	hSpeed	Local	0	Decimal	DINT				 Parameter Connect 	ions {0:0}
AZ, Ethernet	▶ hTargetTorque	Local	0	Decimal	INT					
JOSS-ESSDERIM EZ_AC	hTorqueOffset	Local	0	Decimal	INT					
	hTorqueSlope	Local	0	Decimal	INT					
	hTriggerCondition	Local	0	Decimal	BOOL					
	hTriggerEdge	Local	0	Decimal	BOOL					
	b. b./elocity	Local	0	Decimal	DINT					
	h hWamCode	Local	0	Decimal	INT		-			
	> Iwancode	Local	0	Decimal	DALT					
	P nwindowor_PC	Local	0	Decimal	DINI					
	P hWriteValue	Local	1000	Decimal	DINI				× *	
	Montor Tags A	Edit Tags /			×	_	_		/	
	Errors									
	🖸 0 Errors	1 0 Wan	nings 0 of 1 Messages						Search	
	Complete - 0 error(s).	0 warning(s)								
	complete v criter(o))	o warning (o)								
troller Organizer 🐘 Logical Organizer	<									
tch Reculte with Match										

Figure 1.5.5

2. Parameters setup

2.	Parameter	s setup	2-1
	2.1	Create an axis	2-2

2.1 Create an axis

1. In the main window, right-click **A1**, **Ethernet** and select **New Module...**.

Note: Create the axis on A1 or A2 based on the actual connecting configuration.

Logix Designer - E2_AC [5069-L330ERM 34.11]			- # ×
File Edit View Search Logic Communication	ions Tools Window Help		
12 🖆 🗎 🖶 🗶 이 외 🤊 약	 * * # 1 1	0 8 G C	
ERUN Path: <none></none>	5.8.1	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	
Every Storage Offline . No Porces	▶_ No Edits 🔒	Favorites Add-On PlantPilx Safety Alarma Bit Timer/Counter Input/Output Compare Compute/Math MovelLegical File/Misc. File/S	
Controller Organizer 👻 🔻 🛪			
Confolie Organizati P The Court-No Handler P The Cou	m Module port Modules sever Modules se ⊂Cul+Y operties Alt-Enter rt •		
	Errors		
Controller Organizer	CErros 🛦 O Wernigs 😈	0 Messages	Search

Figure 2.1.1

2. At this time, "Select Module Type" window will pop up. Uncheck all the options in the right column.

Enter Search Text for Module	е Туре	Clear	Filter	s		Hide Filters	*
Module Type Categor 20 - Comm-ER Analog CIP Motion Safety Tra Communication	y Filters ck Section	~ ~)	Module Type Ve Advanced Energy Bray Internationa Buerkert Fluid Co Dialight	ndor Filters y Industries, Inc. ıl, Inc ontrol Systems	د	^
Cstalog Number 1420-VIP-ENT 0001_0073_010D 0005_007B_0030 0005_007B_0038 <	Description Powermonitor 500 48MS-SN1PF1-M2 48MS-SN1PF2-M2 SP600 SP600 ER 400V SD600 ER 400V				Vendor Rockwell Autom Rockwell Autom Rockwell Autom Rockwell Autom Pockwell Autom	Category PowerMonitor 5 Rockwell Autom Rockwell Autom DPI to EtherNett DPI to EtherNett	

Figure 2.1.2

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Parameters setup

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Catalog Module Discovery Favorites	
Enter Search Text for Module Type Clear Filters	
Module Type Category Filters 20 - Comm-ER Analog CIP Motion Safety Track Section Communication Communication Catalog Number Description Vendor Category	
0 of 820 Module Types Found Add to Favorite	elp

Figure 2.1.3

3. Select HIWIN MIKROSYSTEM CORP., and then E2 drive will be displayed.

Enter Search Text for Modu	le Type	Clear	Filters		H	ide Filters 🛛 🚖
Module Type Catego 20 - Comm-ER Analog CIP Motion Safety Tr Communication	ry Filters ack Section	^ ~	 I I	Module Type Vendor Filters Hiprom Technologies HIWIN MIKROSYSTEM CORI HMS Industrial Networks AB Hoffman Enclosures	2	~
 Catalog Number 	Description			Vendor	Cate	2017
E2	ED2F servo drive			HIWIN MIK	RO Gene	eric Device (key
<						>

Figure 2.1.4

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Parameters setup

4. Click **Create** and complete the settings of **Name** and **Private Network** in "New Module" window. The IP setting of Private Network must be the same as that of drive, or communication cannot be normally established.

		📧 New Module		×
Select Module Type Catalog Module Discovery Favorites Enter Search Test for Module Type	Hide Filters 🗇	General* - Connection - Time Sync - Module Info - Internet Protocol - Pot Configuration - Network	General Type: E2 ED2F servo drive Vendor: HWWN MIKROSYSTEM CORP. Parent: Local	
Module Type Celegory Filter 20 - CommeR Anabg CIP Moino Sketton CIP Moino Sketton Communication Communication	Add to Fevorite:		Name: E2 Description:	Ethernet Address Private Network: 192.168.1. 10 10 10 10 Address: O Host Name: Host Name:
Close on Creete	Close Help	: Status: Creating		OK Cancel Help

Figure 2.1.5

5. Click **Change** in "New Module" window, select **INT** for **Size** in "Module Definition" window, and click **OK**.

	I New Module	×
Select Module Type Catalog Module Discovery Ferraritie Catalog Module Discovery Ferraritie Catalog Module Discovery Ferraritie Catalog Module Type Catagory Filters Analog Catalog Sector Test Sectors Catalog Sector Test Sectors Catalog Module Type Catalog Number C	Arw Module General General Tore Syn	Ethemet Address @ Pinvate Network: 192.168.1. 10 O IP Address: O IP Address:
E2 ED2F serve drive HIWIN MIKKO	Module with a state of the stat	OK Carcel Help

Figure 2.1.6

		New Module	×
Select Module Type Cehog Module Discovery Fevorite Enter Search Text for Module Type. Module Type Cokagory Files Anolg O Comments Comments	Hile Films *	Correction Test and Correction Test Test	v 001 • pathle Module vite Network: 1152 158.1 10 • Highut: 32 Sitr vite Network: Output: 32 Sitr vite Name: Output: 32 Output: 32 Output: 32 Output: 32
Close on Create Create	Close Help	Status: Creating	OK Cancel Help

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Parameters setup

6. Click **Yes** in "Logix Designer" window and click **OK** in "New Module" window.

		💽 New Module			×
		General*	General		
Select Module Type		- Time Sync	Type:	P3 P3 P	
Catalog Module Discovery Fevorites		Module Info Internet Protocol	Vendor:	Module Definition*	
	OL 171 171	Port Configuration	Parent:	Revision: 1 V 001 🜩	
Enter Search Text for Module Type	Lieur Fullers A		Name:	Electronic Keying: Compatible Module ~	vet Address
Module Type Category Filters	Module Type Vendor Filters		Description:	Connections:	wate Network: 192.168.1. 10
Analog	HIWIN MIKROSYSTEM CORP.			Name Size	Address:
CIP Motion Safety Track Section Communication	HMS Industrial Networks AB			Exclusive Owner Input: 32 INT Output: 32	ast Name:
	> Logix Designer		× .		
Catalog Number Description	These changes will cause module data types and proper Data will be set to default values unless it can be recover	ties to change. ed from the existing module prope	erties. "le Defini		
E2 ED2F servo drive	Verify module properties before Applying changes.		ision;		
	Change module definition?		tronic Ke		
	Yes No		nections		
<	>			OK Cancel Help	
1 of 820 Module Types Found	Add to Favorites			Change	
Close on Creste	Create Close Help	Status: Creating			OK Cancel Help



	I New Module X
	General General
Select Module Type Catalog Module Discovery Favorable Fater Search Text for Module Type. Module Type Category Filters Module Type Category Filters Module Type Category Filters Module Type Category Filters Category Text Section Module Type Category Filters Category Text Section Module Type Category Filters Module Type Categor	Connection* Time Sync* Type: E2 ED2F serve drive Module Info Type: E2 ED2F serve drive Internet Rotocol* Verder: HWINI MILROSYSTEM CORP. Pott Configuration* Parent: Local Name: E2 Desorption: Private Network: 192 168.1. 0 ♥ Hott Name: Hott Name:
Cashog Number Description Vendor Category E2 ED2F ervo drive HIWIN MIKRO Generic Device Gays C 1 of 820 Module Types Found Add to Revorites	Module Definition Revision: 1.001 Electronic Keying: Compatible Module Connections: Exclusive Owner Change
Close on Create Close Help	Status Creating OK Cancel Help

Figure 2.1.9

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Parameters setup

7. Click **Close** in "Select Module Type" window.

The axis E2 will be successfully created in the main window.

Select Mo	odule Type Module Discovery Favor	ites							
Ente	er Search Text for Module Ty	ре	CI	ear	Filters			Hide Filter	2 🛠
	Module Type Category Fi 20 - Comm-ER Analog CIP Motion Safety Track S Communication	lters	>	<		Module Type Ve Hiprom Technolo HIWIN MIKROS HMS Industrial N Hoffman Enclosu	ndor Filters ogies YSTEM CORP. etworks AB res		^ ~
-	Catalog Number E2	Description ED2F servo drive					Vendor HIWIN MIKRO	Category Generic Devi	ce (keya
<									>
1 of 8	820 Module Types Found							Add to Fe	avorites
	lose on Create						Create	Close	Help

Figure 2.1.10



Figure 2.1.11

3. Create function blocks

3.	Create fun	ction blocks	
	3.1	Import Add-On Instructions (AOIs)	
	3.2	Set up procedure for controller	
	3.2.1	Axis communication	
	3.2.2	Motion instructions	
	3.2.3	Parameter read/write	
	3.3	Download software setup to PLC	

3.1 Import Add-On Instructions (AOIs)

- 1. Download EtherNet/IP's function blocks and its manual from HIWIN MIKROSYSTEM's official website: Function Blocks (AOIs) : EtherNet IP with Rockwell Studio 5000
- 2. In the main window, expand Assets, right-click Add-On Instructions, and select Import Add-On Instruction....

🔮 Logix Designer- E2, AC (5009-L330ERM 34.11)* -	8 ×
File Edit View Search Logic Communications Tools Window Help	
10 🖕 🖬 長 (1 日 クマー 🔷 10 10 10 10 10 10 10 10 10 10 10 10 10	
I Derg Songe Alline I telever b Norfale 2 s Fronties Add/o Par/Ms Add/	
III Power-Up Handler A	
Miniliak Miniliak Miniliak Miniliak Miniliak	
Incheduled	
A Construction Groups	
b and Aleman Responses	
A Data State Control Data State Control Contro	
C Ur Ofinia Marcina Contraction Instruction	
ing anapa X Cut Curit. III data Con Defined AT Concy Curit.	
bill Enderhand Control bill Muchandrand Control	
r Ig nouse venes Pate Web Configuration. Cel+Shih+V Pate Web Configuration. Cel+Shih+V	
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Figure 3.1.1

3. Select the file with the name of **HIWIN_MIKROSYSTEM_AOIs_vx.x.L5X** and click **Open**.

💕 Import Add	-On Instruction			×
Look in:		✓ ④ [€ 📂 📂	
Quick access	Name	^ KROSYSTEM_AOIs_v1.1.L5X	Date modified 2024/7/3 下午 02:4	2
Desktop				
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This PC	_			
) Network	< File name:	HIWIN_MIKROSYSTEM_AOIs_v1.1.L5X	✓ Ope	> m
	Files of type:	Logix Designer XML Files (*.L5X)	 ✓ Cano Help 	p

Figure 3.1.2

Create function blocks

E2 EtherNet/IP Drive Complete Setup with Rockwell Studio 5000

4. Click **OK** to import AOIs.

Import Configuration - HIWIN_MIKROSYSTEM_AOIs_v1.1.L5X	Х
Eind: Find/Replace	
Import Content:	
Add-On Instructions Montple Instructions Add-On Instructions Add-On Instructions Madd-On Instruction	
OK Cancel Help	
Ready	

Figure 3.1.3

5. As the import is completed, the supported AOIs will be displayed under **Add-On Instructions** of the main window.



Figure 3.1.4

3.2 Set up procedure for controller

3.2.1 Axis communication

This function block is used for data transmission of drive motion and parameter IO.

- (1) Before using each function block, complete the axis communication setup first and ensure the instruction is in enabled state.
- (2) For each axis, the transmission channel must be created via axis communication (H_ACOMM) instruction.

Note:

For the detailed instruction description and configuration precautions of AOIs, please refer to "Function Block (AOIs) Application Manual E2 EtherNet/IP Drive with Rockwell Studio 5000."

1. Expand main window's **Tasks**→**MainTask**→**MainProgram** and double-click **MainRoutine** to start editing the procedure.

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🔺 🛁 Controller E2_AC			
Controller Tags			
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A C Motion Groups			
Ungrouped Axes			
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Figure 3.2.1.1

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E2 EtherNet/IP Drive Complete Setup with Rockwell Studio 5000

Create function blocks

2. Right-click MainRoutine procedure and select Add Ladder Element....

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💼 Power-Up Handler 4 🖼 Tasks	(Fact)	Copy Rung Paste	Ctrl+C Ctrl+V						
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P ■ Alarm Manager ▲ □ Assets Þ ■ Add-On Instructions Þ ■ Data Types ■ Trends		Start Pending Rung Edits Start Pending Rung Edits Accept Pending Rung Edits EB Cancel Pending Rung Edits	Ctrl+Shift+S						
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🖉 Search Results 🐺 Watch									

Figure 3.2.1.2

In "Add Ladder Element" window, select **H_ACOMM** instruction and click **OK**.

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Figure 3.2.1.3

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Create function blocks

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a 11				
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Controller Fault Handler		InputData OutputData	? - <en>-</en>	-
Power-Up Handler		H_Axis	PLCC	ontrollable)
▲ (> MainTask		ConnectionPaulied	?? -(Err)-	-
MainProgram		ErrCode	? ??(Warp	
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3. Create H_ACOMM instruction. Double-click the items that display a single question mark to set the variable names.

H_ACOMM			H_ACOMM		
H_ACOMM	?		H_ACOMM	hACOMM	
InputData	?	-(EN)-	InputData	hInputSata	-(EN)
OutputData	?		OutputData	hOutputData	
H_Axis	?	-(PLCControllable)-	H_Axis	hAxis	-(PLCControllable)-
ConnectionFaulted	?		ConnectionFaulted	hConnectFaulted	
	??	-(Err)		??	-(Err)
ErrCode	?		ErrCode	hErrCode	
	??	-(Warn)-		??	-(Warn)-
WarnCode	?		WarnCode	hWarnCode	
	??			??	

Figure 3.2.1.5

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E2 EtherNet/IP Drive Complete Setup with Rockwell Studio 5000

Create function blocks

4. Right-click the variables with set names and select **New** to define them. (Every variable with set name must execute this step.)



Figure 3.2.1.6

Name:	hACOMM		Create 🛛
Description:		^	Cancel
			Help
		~	
Usage:	Local Tag	~	
Type:	Base ~ Co	nnection	
Alias For:		~	
Data Type:	H_ACOMM		
Parameter Connection:		~	
Scope:	🔓 MainProgram	~	
External Access:	Read/Write	~	
Style:		\sim	
Constant			
Sequencin	g		
	P		

Figure 3.2.1.7

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5. After the configuration of variables is completed, the following figure will be displayed.



Figure 3.2.1.8

 H_ACOMM instruction's InputData, OutputData, and ConnectionFaulted must be linked to E2 drive module's tags I.Data, O.Data, and I.ConnectionFaulted. Double-click the variables and refer to the configuration in Figure 3.2.1.9 ~ Figure 3.2.1.11.

	HIVVIN MIKRUSYSI	LM	
	Axis Communicati	on	
	instruction.		1.1
H_ACC	DMM bacc		
InputDa	ata E2:I Data		
Outrut	Data	✓ (Cn)	
H_A	Enter Name Filter 🗸 🗸	Show: All Tags	
	Name	== Data Type	,
ErrC	E2:1	_06BA:E2_/	A40D
War	E2:1.ConnectionFaulted	BOOL	
vvar	E2:LData	INT[32]	_
	■ ► E2:0	06BA:E2 (8B67
	HAcceleration	Name: E2:1 Data	
	The coordination	Data Type: INT[32]	_
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\sim	Show Main Program tags		
Sł	now parameters from other progra	m:	
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		5.2.1.9 FM	
	HWIN MIKROSYST Axis Communicati	5.2.1.9 EM on	
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H_ACC H_ACC InputD Output	HIWIN MIKROSYST Axis Communicati instruction. DMM hACC ata E2:11 Data E2:0.Data		
H_ACC H_ACC InputD Output H_Avii Con	HIWIN MIKROSYST Axis Communicati instruction. DMM hACCO ata E2:11 EData E2:0.Data	Show: All Tags	-
H_ACC H_ACC InputD Output H_A~ii Con	HIWIN MIKROSYST Axis Communicati instruction. DMM hACC ata E2:11 E2:0.Data E2:0.Data	Show: All Tags	
H_ACC InputD OutputD Con	HIWIN MIKROSYST Axis Communicati instruction. DMM hACC ata E2:11 Data E2:0.Data	Show: All Tags	8867;
H_ACC H_ACC InputD Output H_Avia ErrC War	HIWIN MIKROSYST Axis Communicati instruction. DMM hACC ata E2:10 T Enter Name Filter	SIZ.1.9	88671
H_ACC H_ACC InputD Output Con ErrrC War	HIWIN MIKROSYST Axis Communicati instruction. DMM hACC ata E2:11 Data E2:0.Data <i>Enter Name Filter</i>	Show: All Tags <u>Bata</u> <u>CEN</u> <u>CEN</u> <u>CEN</u> <u>CEN</u> <u>CEN</u> <u>CEN</u> <u>CEN</u> <u>CEN</u> <u>CEN</u> <u>CEN</u> <u>CEN</u> <u>CEN</u> <u>CEN</u> <u>CEN</u> <u>CEN</u> <u>CEN</u> <u>CEN</u> <u>CEN</u> <u>CEN</u> <u>CEN</u> <u>CEN</u> <u>CEN</u> <u>CEN</u> <u>CEN</u> <u>CEN</u> <u>CEN</u> <u>CEN</u> <u>CEN</u> <u>CEN</u> <u>CEN</u> <u>CEN</u> <u>CEN</u> <u>CEN</u> <u>CEN</u> <u>CEN</u> <u>CEN</u> <u>CEN</u> <u>CEN</u> <u>CEN</u> <u>CEN</u> <u>CEN</u> <u>CEN</u> <u>CEN</u> <u>CEN</u> <u>CEN</u> <u>CEN</u> <u>CEN</u> <u>CEN</u> <u>CEN</u> <u>CEN</u> <u>CEN</u> <u>CEN</u> <u>CEN</u> <u>CEN</u> <u>CEN</u> <u>CEN</u> <u>CEN</u> <u>CEN</u> <u>CEN</u> <u>CEN</u> <u>CEN</u> <u>CEN</u> <u>CEN</u> <u>CEN</u> <u>CEN</u> <u>CEN</u> <u>CEN</u> <u>CEN</u> <u>CEN</u> <u>CEN</u> <u>CEN</u> <u>CEN</u> <u>CEN</u> <u>CEN</u> <u>CEN</u> <u>CEN</u> <u>CEN</u> <u>CEN</u> <u>CEN</u> <u>CEN</u> <u>CEN</u> <u>CEN</u> <u>CEN</u> <u>CEN</u> <u>CEN</u> <u>CEN</u> <u>CEN</u> <u>CEN</u> <u>CEN</u> <u>CEN</u> <u>CEN</u> <u>CEN</u> <u>CEN</u> <u>CEN</u> <u>CEN</u> <u>CEN</u> <u>CEN</u> <u>CEN</u> <u>CEN</u> <u>CEN</u> <u>CEN</u> <u>CEN</u> <u>CEN</u> <u>CEN</u> <u>CEN</u> <u>CEN</u> <u>CEN</u> <u>CEN</u> <u>CEN</u> <u>CEN</u> <u>CEN</u> <u>CEN</u> <u>CEN</u> <u>CEN</u> <u>CEN</u> <u>CEN</u> <u>CEN</u> <u>CEN</u> <u>CEN</u> <u>CEN</u> <u>CEN</u> <u>CEN</u> <u>CEN</u> <u>CEN</u> <u>CEN</u> <u>CEN</u> <u>CEN</u> <u>CEN</u> <u>CEN</u> <u>CEN</u> <u>CEN</u> <u>CEN</u> <u>CEN</u> <u>CEN</u> <u>CEN</u> <u>CEN</u> <u>CEN</u> <u>CEN</u> <u>CEN</u> <u>CEN</u> <u>CEN</u> <u>CEN</u> <u>CEN</u> <u>CEN</u> <u>CEN</u> <u>CEN</u> <u>CEN</u> <u>CEN</u> <u>CEN</u> <u>CEN</u> <u>CEN</u> <u>CEN</u> <u>CEN</u> <u>CEN</u> <u>CEN</u> <u>CEN</u> <u>CEN</u> <u>CEN</u> <u>CEN</u> <u>CEN</u> <u>CEN</u> <u>CEN</u> <u>CEN</u> <u>CEN</u> <u>CEN</u> <u>CEN</u> <u>CEN</u> <u>CEN</u> <u>CEN</u> <u>CEN</u> <u>CEN</u> <u>CEN</u> <u>CEN</u> <u>CEN</u> <u>CEN</u> <u>CEN</u> <u>CEN</u> <u>CEN</u> <u>CEN</u> <u>CEN</u> <u>CEN</u> <u>CEN</u> <u>CEN</u> <u>CEN</u> <u>CEN</u> <u>CEN</u> <u>CEN</u> <u>CEN</u> <u>CEN</u> <u>CEN</u> <u>CEN</u> <u>CEN</u> <u>CEN</u> <u>CEN</u> <u>CEN</u> <u>CEN</u> <u>CEN</u> <u>CEN</u> <u>CEN</u> <u>CEN</u> <u>CEN</u> <u>CEN</u> <u>CEN</u> <u>CEN</u> <u>CEN</u> <u>CEN</u> <u>CEN</u> <u>CEN</u> <u>CEN</u> <u>CEN</u> <u>CEN</u> <u>CEN</u> <u>CEN</u> <u>CEN</u> <u>CEN</u> <u>CEN</u> <u>CEN</u> <u>CEN</u> <u>CEN</u> <u>CEN</u> <u>CEN</u> <u>CEN</u> <u>CEN</u> <u>CEN</u> <u>CEN</u> <u>CEN</u> <u>CEN</u> <u>CEN</u> <u>CEN</u> <u>CEN</u> <u>CEN</u> <u>CEN</u> <u>CEN</u> <u>CEN</u> <u>CEN</u> <u>CEN</u> <u>CEN</u> <u>CEN</u> <u>CEN</u> <u>CEN</u> <u>CEN</u> <u>CEN</u> <u>CEN</u> <u>CEN</u> <u>CEN</u> <u>CEN</u> <u>CEN</u> <u>CEN</u> <u>CEN</u> <u>CEN</u> <u>CEN</u> <u>CEN</u> <u>CEN</u> <u>CEN</u> <u>CEN</u> <u>CEN</u> <u>CEN</u> <u>CEN</u> <u>CEN</u> <u>CEN</u> <u>CEN</u> <u>CEN</u> <u>CEN</u> <u>CEN</u> <u>CEN</u> <u>CEN</u> <u>CEN</u> <u>CEN</u> <u>CEN</u> <u>CEN</u> <u>CEN</u> <u>CEN</u> <u>CEN</u> <u>CEN</u> <u>CEN</u> <u>CEN</u> <u>CEN</u> <u>CEN</u> <u>CEN</u> <u>CEN</u> <u>CEN</u> <u>CEN</u> <u>CEN</u> <u>CEN</u> <u>CEN</u> <u>CEN</u> <u>CEN</u> <u>CEN</u> <u>CEN</u>	88674
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H_AC(InputD Output Con ErrC War	HWIN MIKROSYST Axis Communicati instruction. DMM hACC ata E2:1.1 Data E2:0.Data T. Enter Name Filter	S.2.1.9	8867i
H_ACC H_ACC InputD OutputH_Avia Con	HIWIN MIKROSYST Axis Communicati instruction. DMM hACC ata E2:0.Data T. Enter Name Filter	SIZ.1.9	8 B67 i Data
H_ACC H_ACC InputD Output ErrC War	HIWIN MIKROSYST Axis Communicati instruction.	Show: All Tags I Data Type 	8 B67 i Data T[32]
H_ACC H_ACC InputD Output Con ErrC War	HWIN MIKROSYST Axis Communicati instruction. DMM hACC ata E2:0. E2:0.Data E2:0.Data Mame A E2:0 E2:0.Data HAcceleration hACCMM hAxis Show controller tags	Show: All Tags Controllable Show: All Tags Show: All Tags	8 867 ; Data T[32]
H_ACC InputD Output ErrC War	HWIN MIKROSYST Axis Communicati instruction.	S.2.1.9	8 867 ; Data TT[32]
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Figure 3.2.1.10

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Create function blocks

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	HIWIN MIKROSYSTEM Axis Communication instruction.			^
H_ACOMM H_ACOMM InputData OutputData H_Axis ConnectionFaulted	hACOMM E2:I.Data E2:O.Data hAxis E2:I.ConnectionFaulted	-(E) -(P) -(P)	N)	
ErrC Enter Nan	ne Filter 🗸 Sho	ow: All Ta	gs	~
War Name	ConnectionFaulted		BOOL INT[32]	
■ ► E2:0 HAccel ► hACON	eration IM	Name: Data Ty Descrip	E2:I.ConnectionFa /pe: BOOL /tion:	ulted
Show contro	oller tags Program tags			
Show paramete	rs from other program:			
<none></none>		~		

Figure 3.2.1.11

3.2.2 Motion instructions

Function blocks in this section support the functions including axis shutdown, axis enabling, axis moving, axis homing, axis error clearing, axis torque control, axis arm registration and axis arm watch. Please create the function blocks based on the actual requirement. Here takes enabling and homing as setup examples.

Note:

For the detailed instruction description and configuration precautions of AOIs, please refer to "Function Block (AOIs) Application Manual E2 EtherNet/IP Drive with Rockwell Studio 5000."

 Refer to the configuration steps of function block in section 3.2.1 to complete the configuration of instructions H_MSO and H_MAH. The variable of H_Axis must be the same as H_ACOMM instruction's H_Axis, or the controller cannot normally give instructions to the axis.

Logix Designer - E2_AC [5069-L330ERM 34.11]*		- 8 ×
File Edit View Search Logic Communicati	ons Tools Window Help	
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E RUN		
Enerty Stylene		
I/O Offline V No Forces	▶ No Edits . Vo Edits . Vo Edits . Vo Edits . No Edi	
Controller Organizer 👻 🔻 🛪	📙 MainProgram - MainRoutine* 🗙 🧳 Program Parameters and Local Tags - MainProgram 🛛 🧳 Controller Tags - E2_AC(controller)	
0 °1		
▲ Gontroller E2_AC		WarnCode hWarnCode
Controller Tags		0 🗭
Controller Fault Handler		
Power-Up Handler		HM/N MKDOSVSTEM
A C MainTack		Axis Servo OFF
A h MainProgram		Instruction
Parameters and Local Tags	NEMSF	H_MSF H_WSFHMSF
MainRoutine		H_Axis hAxis -(EN)-
Unscheduled		ErrCode 0+ -(DN)
🔺 🖳 Motion Groups		
Ungrouped Axes		
4 🖼 Alarm Manager		
J. Alarms		HWIN MKROSYSTEM
JL Alarm Definitions		instruction.
A C Add. On Instructions	hENSO	H_MSO
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▶ @ H_MAR		HWIN MIKROSYSTEM
▶ ⊕ H_MAS	hEMAJ	Axis Jog Instruction
P @ H_MASD	3	H_MAJ hMAJ
P III H MAT		H_Axis hAxis - <en)< th=""></en)<>
b ⊕ H MAW		0+ -(DN)
▶ ⊕ H MDR		Acceleration HAcceleration
▶ ⊕ H_MDW		Deceleration hDeceleration
▶ ⊕ H_MSF		0 🗰 - <er></er>
Image: Image		Direction hDirection
H_ParmRead_Single		ErrCode 0+
P to H_ParmWrite_Single		
Liter Defined		
V Im Oser-Derined		
Add-On-Defined	Errors	+ + ×
Predefined	O DETORS 0 Warnings 0 of 8 Messages	Search P
Module-Defined		
iii Trends	complete = 0 error(a), 0 warning(a)	Â
🍾 Logical Model 🗸		
Description HIWIN MIKROSVSTEM Axis Co		
Logical Organizer		× *
Search Results 🐺 Watch		
Parts		isation Coffmans: Saston Talls Ion Dung O of 46 ADD MCD

Figure 3.2.2.1

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E2 EtherNet/IP Drive Complete Setup with Rockwell Studio 5000

Create function blocks

Logix Designer - E2_AC [5069-L330ERM 34.11]*									- 8 ×
File Edit View Search Logic Communicati	ions Tools 1	Vindow Help							
ъ 🖕 💾 🖶 🔺 🛈 🗇 🤊 🦿 🔄		v 🐤 🎓 🎵 📴	Ъ Б Б 🖄 🗘 🛍 😂 🔅						
ERUN Path: Backplane/16*				નામ નાગમ ના મ					
Energy Storage	k No.	-de a	+ Favorites Add-0	n Alarms Bit Timer/Counter Inpu	t/Output Compare Compute/Math Move/Logi	ical File/Misc. File/Shift Sequencer	P		
Controller Organizer	E MainPro	nram - MainBoutine*	Program Parameters and Local Tag	is - MainProgram 🧳 Controller Tac	as - E2 AC(controller)	· · ·			
a =	e e H	1 16 72 16 16 19	2 d oo	,, mann regnann i vi connional rag	he refrected and				
▲ Gontroller E2_AC								Acceleration HAccele	ration
Controller Tags								Acceleration HACCER	0 ← - <p) ^<="" td=""></p)>
Controller Fault Handler								Deceleration hDecele	oten
A Casks								Direction hDire	action
🔺 🔿 MainTask								ErrCode	0.
A b MainProgram									
Parameters and Local lags In MainRoutine								HWIN MIKROSYSTEM	
Unscheduled								Axis Homing	
A 🛁 Motion Groups		hEMAH					H_MAH		
Ungrouped Axes	4						H_MAH	1	MAH
Q. Alarms							Method	hM	ethod
🗘 Alarm Definitions							Search	witchSpeed hSearchSwitchS	speed
A G Assets							Search	eroSpeed hSearchZeroS	0 ← −(P)− Speed
► I ACOMM							Acceler	ation HAccale	0 + - <pc></pc>
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▶ @ H_MAR							_ Horivin	grinteeur mitoinemagrin	iccur []
▶ @ H_MAS								HAND HERDORVETE	
P 12 H_MASD								Axis Positioning	
H_MAT		NEMAM						instruction H MAM	
▶ @ H_MAW	5							H_MAM	MAM
P ⊕ H_MDR b ⊕ H_MDW								H_AXIS I Position hPo	JAXIS -(EN)-
▶ ⊕ H_MSF								Velocity bVe	0 + -(DN)
▶ ⊕ H_MSO									0 • -(P)
▶ ∰ H_ParmRead_Single ► Ø H_ParmWith Single								Acceleration HAccele	0 + -(PC)
A G Data Types								Deceleration hDecele	n 📥 🔤 🗸 🗸
User-Defined									• • • •
Strings	Errors								
Predefined	8	0 Errors	0 Warnings 0 of 8 Messages					Search	Q
Module-Defined	Complete -	0 error(s), 0 warn	ing(s)						
Trends									
it Logical Model									
The Controller Organizer Re Logical Organizer									
Search Results Watch									<u> </u>
Ready								inx Rung 0 of 16	APP VER

Figure 3.2.2.2

Refer to the following configuration for H_MAH instruction's hHomeMsgWriteCtrl.
 Click the box on the right of hHomeMsgWriteCtrl. "Message Configuration" window will pop up.
 Select Set Attribute Single and hMAH.MsgWriteData, and set Class, Instance and Attribute to 0.

ssage Type: CIP Generic	~			HIWIN MIKROSYSTEM Axis Jog instruction
				H_MAJ hMAJ
vice Set Attribute Single 🗸 🗸	Source Element:	hMAH.MsgWriteData 🗸		H_Axis hAxis
	Source Length:	Enter Name Filter	Show: All Tage	Speed hSpeed
Ce 10 (Hex) Class: (Hex		Γψ	ra luga	Acceleration HAcceleration
	Element:	Name	EBI Data Type	0+
ice: Attribute: (Hex		hMAH.IP	BOOL	
	1	MAH.PC	BOOL	Direction hDirection
		hMAH ErrCode	DOL	ErrCode 04
		hMAH MsgWriteData	DNT	
		▶ hMAJ		
		hMethod	Name: hMAH.MsgWriteData	1
		▶ hMSF	 Description: HIWIN MIKROSYSTEM Axis Homing instruction DO NOT CHANGE (used) 	to set the HomeMsgWriteCtrl 'source element')
	1	Show controller tags		H_MAH
		Show controller tags		H_MAH H_MAH hMAH
		Show controller tags		H_MAH H_MAH hMAH H_Axis hAxis Method hMethod
		✓ Show controller tags ✓ Show MainProgram tags		H_MAH H_MAH hMAH H_Axis hAxis Method hMethod 0
e OEnable Watting OStart) Done [Show controller tags Show MainProgram tags		H UAH H MAH H Adis h Adis Method SearchSwitchSpeed hAXIS hAXIS
le ⊖ Enable Waiting ⊖ Start	O Done [Show controller tags Show MainProgram tags		H.UAH H. MAH H. Axis Method SearchSwitchSpeed SearchSwitchSpeed SearchZeroSpeed hSearchZeroSpeed
le ⊖Enable Watting ⊖Start Code: Extended Error Code:	⊖ Done [☑ Show controller tags ☑ Show MainProgram tags Done Length: 0 ☐ Timed Out ◆		H UAH HAAH HAAH HAAH HAAH HAAH HAAKS
ole ◯ Enable Wating ◯ Start *Code: Extended Error Code: #t:E2	Q Done [✓ Show controller tags ✓ Show MainProgram tags Done Length: 0 Timed Out ◆ 		H UAH H UAH H JAAH H Axis Method SearchSwitchSpeed SearchZeroSpeed Acceleration HAcceleration O ♥

Figure 3.2.2.3

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Create function blocks

3. Switch to **Communication** tag, click **Browse...** to select the corresponding axis (E2), and click **OK**.

Message Configuration - hHomeMsgWriteCtrl	×
Configuration* Communication Tag	Browse
Broadcast:	Message Path Browser Path: E2 E2 I/O Configuration G 5069 Backplane G 10 5069-L330ERM E2_AC S 5069-L30ERM E2_AC S 5
C Enable Enable Enable Waiting Start Don Error Faut: OK Car	OK Cancel Help

Figure 3.2.2.4

onfiguration*	Communicatio	n' Tag				
Path:	E2				Brows	e
E	2					
Broadcas	st:	\sim				
Communicati	ion Method					
● CIP (DH+ Char	nnel: 14	۹, ~	Destination L	ink: 0	-
CIP With Source II	D Sou	rce Link: 🚺)	Destination M	Node: 0	🗘 (Octal
Connect	ted		Cache Conn	nections 🗧 🗧	Large	Connection
Connect	ted		Cache Conr	nections 🗧 🗧	Large	Connection
Connect	ted		Cache Conr	nections 🗧	Large	Connection
Connect	ted		Cache Conr	nections 🔶	Large	Connection
Connect	ted		Cache Conr	nections 🕈	Large	Connection
Connect	ted		Cache Conr	nections 🗲	Large	Connection
[] Connect	ted		Cache Conr	ections 🔶	Large	Connection
Connect	ted		Cache Conr	ections 🕈	Large	Connection
D Enable	ted) Enable Waitin	ng OS] Cache Conr	Done	Done Length:	0
) Enable ()) Error Code:	ted) Enable Waitin E	ng 🔾 S ktended Erro	Cache Conr Start or Code:	O Done	Done Length:	0

Figure 3.2.2.5

3.2.3 Parameter read/write

Function blocks in this section support the read/write function of drive. Refer to the following example to complete the setup.

Note:

For the detailed instruction description and configuration precautions of AOIs, please refer to "Function Block (AOIs) Application Manual E2 EtherNet/IP Drive with Rockwell Studio 5000."

 Refer to the configuration steps of function block in section 3.2.1 to complete the configuration of instructions H_ParmRead_Single and H_ParmWrite_Single. The variable of H_Axis must be the same as H_ACOMM instruction's H_Axis, or the controller cannot normally give instructions to the axis.



Figure 3.2.3.1

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Create function blocks

Refer to the following configuration for H_ParmRead_Single instruction's hMSG_Read.
 Click the box on the right of hMSG_Read. "Message Configuration" window will pop up.
 Select Get Attribute Single and hParmRead_Single.MsgReadData, and set Class, Instance and Attribute to 0.

		Parameter
		H_ParmRead_Single
Aessage Configuration - hMSG_Read	×	H_Axis hAxis (EN)-
		Parm_NO hParm_NO
Configuration Communication Tag		Parm_Subindex hParm_SubINDEX
Message Type: CIP Generic	✓	Is_Data_REAL his_Data_REAL
		0+ -(ER)
Service Get Attribute Single V Source Electronics	ment: v	
Source Len	nath: 0 (Bytes)	ReadValue_REAL hReadValue_Real
Service e (Hex) Class: 0 (Hex)	n Single McgReadData	MSG_Read hMSG_Read
Instance: 0 Attribute: 0 (Hev) Element:		MSG_ErrCode
Instance. 0 Attribute. 0 (ilex)	T Enter Name Filter V Show: All Tags V	MSG_EXtErrCode 0
	Name Data Type ^	
	hParmRead_Single.DN BOOL	Write a HIWIN
	hParmRead_Single.IP BOOL	MIKROSYSTEM Axis
	hParmRead_Single.ER BOOL	H DermWrite Single
	hParmRead_Single.MSG_ErrCode INT	H ParmWrite Single hParmWrite Single
	hParmRead Sinole.MSG ExtErrCode DINT	H Axis hAxis -(EN)-
	hParmPead Single MsoReadData DINT	Parm_NO hParm_NO
	h hParmWrite Single H ParmWrite Sin	0 - (DN)-
	Name: hParmRead_Single.MsgReat	adData
	Data Type: DINT	
	Description: Read a HIWIN MIKRO	SYSTEM Axis Parameter DO NOT CHANGE (Used for MSG setting wind
) Enable O Enable Waiting O Start O Done	Der C Shaw Main Program tage	Is_Data_REAL hls_Data_REAL
Chable C Brable Waiting C Start C Done		0 🔶
Error Code: Extended Error Code:		writevalue nwritevalue
mor Path: E2		WriteValue REAL hWriteValue REAL
mor Text:		0.0 🕈
		MSG_Write hMSG_Write
OK Cance	el Apply Help	MSG_ErrCode 0
		MSG_ExtErrCode 0

Figure 3.2.3.2

3. Switch to **Communication** tag, click **Browse...** to select the corresponding axis (E2), and click **OK**.

Message Configuration	n - hMSG_Re	ead			
Configuration Communic	ation Tag				
Path: E2				Browse	
E2 O Broadcast:	\sim				
Communication Metho	d				
● CIP O DH+	Channel:	'A'	Destination L	nk: 0 韋	
CIP With Source ID	Source Link:	0	Destination N	ode: 0 🗘 (Octa)
Connected		Cache Con	nections 🗧 🗧	Large Connection	
CEnable CEnable V	Vaiting (Start	() Done	Done Length: 0	
Code:	Extended E	mor Code:		Timed Out 4	
⊖ Error Code: Error Path: E2 Error Text:	Extended E	Error Code:		🗌 Timed Out 🗢	

Figure 3.2.3.3

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Create function blocks

 Refer to the following configuration for H_ParmWrite_Single instruction's hMSG_Write. Click the box on the right of hMSG_Write. "Message Configuration" window will pop up. Select Set Attribute Single and hParmWrite_Single.MsgWriteData, and set Class, Instance and Attribute to 0.

		MIKROSYSTEM Axis
		Parameter
		H_ParmRead_Single
		H_ParmRead_Single hParmRead_Single
		H_Axis hAxis (EN)-
		Parm_NO hParm_NO
Message Configuration - hMSG Write	×	Parm_Subindex nParm_SubINDEX
Configuration Communication Too		IS_DAIA_REAL IIIS_DAIA_REAL
Coningulation Communication rag		BoodValue bBoodValue
Message Type: CIP Generic V		ReadValue REAL hReadValue Real
Service Cot Attribute Cingle Source Element:	hParmWrite_Single_M ~~	MSG Read bMSG Read
Type:		MSG ErrCode 0 ¢
Source Length:	🝸 Enter Name Filter 🗸 Show: All Tags	MSG ExtErrCode 0 +
Service 10 (Hex) Class: 0 (Hex)		-
Code:	Name 😑 Data Type 🔨	
Instance: 0 Attribute: 0 (Hex)	hParmWrite Single.EN BOOL	Mirita a HBM/N
	hBarmWrite Single DN BOOL	MIKDOSVSTEM Avia
	ID WARD OF UND	Parameter
	hParmWrite_Single.IP BOOL	H ParmWrite Single
	hParmWrite_Single.ER BOOL	H ParmWrite Single hParmWrite Single
	hParmWrite_Single.MSG_ErrCode INT	H Axis – (EN)-
	hParmWrite Single MSG ExtErrCode DINT	Parm NO hParm NO
	h Deventifier Circle Marking Date	0 + -(DN)
		Parm Subindex hParm SubINDEX
	Name: hPosition	
	Show controller tags	
	Description: Write a HIWINIMIKPOSYSTEM As	is Parameter, DO NOT CHANGE (Used for MSG setting window)
	Show MainProgram tags	is Paraliteter DO NOT CHANGE (osed for Misd setting willdow)
		0 🕈
		WriteValue hWriteValue
		0 🖛
CEnable CEnable Waiting CStart CDone Do	one Length: 0	WriteValue_REAL hWriteValue_REAL
O Error Code: Extended Error Code:	Timed Out to	
		MSG_Write
Error Path: E2		MSG_ErrCode 04
Error Text:		mod_Extendede
OK Cancel	Apply Help	~
		4

Figure 3.2.3.4

5. Switch to **Communication** tag, click **Browse...** to select the corresponding axis (E2), and click **OK**.

od		0
	Destination Link:	0
Source Link: 0	Destination Node:	0 🖨 (Octal
Waiting 🔾 Start	O Done Done	e Length: 0
	od Channet: "A" Source Link: 0	Channet: A Destination Link: Source Link: D Destination Node:

Figure 3.2.3.5

3.3 Download software setup to PLC

1. Click "Build Controller" icon in the main window to confirm that the compilation result is error-free.



Figure 3.3.1

2. Right-click Offline menu and select Download.

Storage Offline	ckplane\16*	▶. No	Edits 🔒	¥ 💑 8	4 → Favorites Add-On Alarma Bit Timer/Counter InputOutput Compare ComputeNam NoveLegical FileNins: FileShift Sequencer F			
Organizer	Go Online Upload Download	1	am - MainRoutine	x 🤗 Program P 대 원과 4 (e)	arameters and Local Tags - MainProgram 🧳 Controller Tags - E2_AC(controller)			
Controller Tags Controller Fault Handler Power-Up Handler ks Main Task	Program I Run Mod Test Mod Clear Faul	Mode e ts				HWWN NKG Axis Com Instru- H_ACOMM hputData DutputData H_Axis	NACOMIN E21Data - E20 Data	(EN)
MainProgram Parameters and Local Ti MainRoutine Unscheduled tion Groups	Go To Fau Controller	Properties				ConnectionFaulted E2:1Conne ErrCode WarnCode	tionFaulted 0 ← -0 hErrCode 0 ← -1 hWarnCode	(Err)
Ungrouped axes m Menager Alarms Alarm Definitions ets tical Model Configuration 5099 Backplane () 10:669-1330ERM E2_AC A1, Ethemet			nemsf				HIWN MIKRO Axis Serve Instruct H_MSF H_Axis h ErrCode	SYSTEM o OFF ion Axis 0 CEN CON -(CR)
		2	hEMSO				HIWN MIKRO: Axis Servi instructs H.MSO H.MSO N. H.Axis ErrCode	SYSTEM to ON ion. MSO

Figure 3.3.2

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E2 EtherNet/IP Drive Complete Setup with Rockwell Studio 5000

Create function blocks

3. Click **Download** in "Download" window.

Logis Designer - E2_AC (5069-L330ERM 34 11) File Edit View Search Logis Communicat Search Logis Communicat Search Logis Communicat Ren Nide Ren Nide Search Common Ni	tions Tools Window v]*r	Help 5 5 5 10 10 10 10 10 10 10 10 10 10 10 10 10	800 ⊣⊟++++()≪)4>		- Ø X
I/O OK Rem Run No Forces	▶. No Edits	a ++	Favorites Add-On Alarms Bit Timer/Counter Input/Output Compare Compute/Math In	NoverLogical File/Misc. File/Shift Sequencer F	
Controller Coganization Controller Coganization Controller E.J.A.C Controller E.J.C.C Controller E.J.C.C.C Controller E.J	MainProgram - N Q Q T P P P P P P P P P P P P P	MainRoutine x Program Parameter	mered local Tage-MarxNegrom		MMN HKDODYSTEM And Gomminatoria istruction Typestolai Typestol
Bue Sine]12 Controller Organizer	Complete - 0 erros	r(s), 0 warning(s)			
Search Results 🐺 Watch					

Figure 3.3.3

4. After the loading procedure is completed, click **Yes** in "Logix Designer" window to switch the controller to Run mode.

Logix Designer - E2_AC [5069-L330ERM 34.11]						
File Edit View Search Logic Communica	ations Tools	Window Help				
🎦 🗳 🖶 🗶 ወሻ በ 🔈 ሮ		D= ha C	• B 💩 🗭 📾 🥨 🖉			
Program Mode		4		41 44 () 00 0)		
Energy Storage OK	h h	n Edite a	4 > Favorites Ac	dd-On Alarms Bt Timer/Counter Input/Output Compare Compute/Math Mo	verLogical File/Misc. File/Shift Sequencer F	
Controller Organizer	MainPr	rogram - MainRoutine y	Program Parameters and Local 1	Tags - MainProgram 🧳 Controller Tags - E2 AC(controller)		
a 12	e ex e	10 14 10 16 16 12 18		A. T. D. T. and M1 at a case		
Controller E2AC Controller E3AC Controller Fault Controller Fault Controller Fault Controller Fault Controller Fault Controller Fault Controller Controller	2 . C1 (1) 0 . 1 . 2 .	13 15 19 15 16 14 18		Logix Designer.]	HWW INFOODYSTEM Just Communities Description Franchise ELICENEE Consistent Full Licensel Franchise ELICENEE Franchise ELICENEE
	Circles -					
	0	0 Errors 1 0 V	amings 0 of 8 Message	12		Search
	Complete -	- 0 error(s), 0 warning(s)				
0						
te Controller Organizer						
Search Results Watch						

Figure 3.3.4

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Create function blocks

E2 EtherNet/IP Drive Complete Setup with Rockwell Studio 5000

5. After the device is successfully connected, the statuses in the main window will display green lights.

Logix Designer - E2_AC [5069-L330ERM 34.11]			- & ×
File Edit View Search Logic Communicati	ions Tools	Vindow Help	
9 C D D * D D 9 C		<mark>▼ 5 5 2 10 15 2 10 10 2 10 10 10 10 10 10 10 10 10 10 10 10 10 </mark>	
Run Mode			
Energy Storage OK	No.	4 85 0 1 Favorites Add-On Alamma Bit Timer/Counter Input/Output Compare Compute/Nath NoveLogical File/Inic. File/ShiR Sequencer F	
Controller Organizer	MainPro	us to target and the second seco	-
@.# <u>#</u>	1 25 23		
Controller E2,AC Concoller E3,AC Concoller Eags Controller Eags Controller E3,AC Concoller E3,AC Monitoryam Unchecheld Monitoryam Unchecheld Concoller E3,AC Concoller E3,AC	0		NVIN NRICEVSTEM And Comminication REACOM Reported VI_ACOM Consistent Consiste
A Maining Definitions A Jalam Definitions A definitions A definitions Of Configuration Of Configuration Of Operations		NEMSF	HUTE HOUSE 31 LIK ALL DECEMBENT RESIDENT H_MSF P_ADES P_ADES MADE COD
E E E E & de A2, Ethernet © 5069-L330ERM E2, AC	2	ненаа — Э.С	HMM INCOSYSTEM Axis Barro DI Instruction II AXIS II A
	3	NBAN TC	HAWI MIKROS'S TEM
	Errors		₩ ₽×
	0	0 Error d O Warnings 0 of 8 Messages	Search
1	Complete -	0 error(#), 0 warning(#)	
Rus Size			
Search Results 💭 Watch			

Figure 3.3.5

4. Operate function blocks

4.	Operate fu	Inction blocks	4-1
	4.1	Execute AOIs	4-2

4.1 Execute AOIs

Here takes function blocks H_ACOMM, H_MSO, H_MAH as examples. Users can refer to the same operation steps for other function blocks.

Note:

Download EtherNet/IP's function blocks and its manual from HIWIN MIKROSYSTEM's official website: Function Blocks (AOIs) : EtherNet IP with Rockwell Studio 5000

1. Right-click **H_ACOMM** and select **Monitor** "**hACOMM**" to open "Program Parameters and Local Tags" window.

Logix Designer - E2_AC [5069-L330ERM 34.11]														- & ×
File Edit View Search Logic Communicati	ions Tools	Window Help												
ଅକ୍ଳା 🖶 × ପିଥା ୨୯		v 🕈 🖉 📴	h B B 🖄	0.00.00										
Concoller OK Path: Backplane\16*			¥ 💑 8		41 44 ()	(U) (L)-				¥				
Energy Storage OK	▶_ N	o Edits 2.		4 + Favorites Add	I-On Alarms Bit	Timer/Counter Inp	ut/Output Compare	Compute/Math Nov	ve/Logical File/Misc.	File/Shift Sequencer F				
Controller Organizer 🗸 🖓 🗙	E MainPr	ogram - MainRoutine	× Program Pr	arameters and Local Ta	ags - MainProgram	n 🦪 Controller Tag	s - E2_AC(controller	ı)						-
at the	1 2 2 2	B M LB 15 K D	te la la la		1. T. D. T	anad (2) al (al.)								
🖌 😴 Controller E2_AC	Annesite												HWIN NIKROSYSTEM	
Controller Tags													Axis Communication	1
Power-Up Handler											H_ACOM	1	Interaction.	
🔺 🚅 Tasks	0										H_ACOM InputData		Edit "hACOMM" Properties	
A C MainTask											OutputDat H Axis	8	Find All "hACOMM"	
Parameters and Local Tags											Connectio	nF	Go To Cross Reference For "hACOMN	A*
Im MainRoutine											ErrCode		Go To First Destructive Reference For	"hacomm"
Unscheduled Groups											WarnCod		Go To Next Destructive Reference For	24
iii Ungrouped Axes												-	Monitor "hACOMM"	
Alarm Manager													Add Alarm for "hACOMM"	
Q. Alarm Definitions													Edit Alarms	
Þ 뺊 Assets		hEMSF												-
▲ Cogical Model ▲ G I/O Configuration	10	-16										ň.	Cut Instruction	Ctrl+X
🖌 🚍 5069 Backplane												0	Paste	Ctrl+V
[0] 5069-L330ERM E2_AC													Delete Instruction	Del
5069-L330ERM E2_AC													Add Ladder Element	A/t+Ins
E2 E2													Edit Main Operand Description	,
5069-L330ERM E2_AC		1.000000											Save Instruction Defaults	
	2	hEMSO										_	Clear Instruction Defaults	
													Remove Force	
													Go To	Ctrl+G
													Instruction Help	F1
													Remove Parameter	
		hEMAJ										E	Remove All Unknown Parameters	
	3	11											Open Instruction Logic	
	Contract		_										Open Instruction Definition	Alta Catar
	cribis				1							-	Properties	AufEnter
	0	0 Errors	0 Warnings	0 of 8 Messages									Search	م
	Complete -	- 0 error(s), 0 warn	ing(s)											1
Rus Sine The Controller Ormanizer Ph. Lonical Ormanizer														
Search Results Results	C													>
Second results & watch														0
Monitor										Comm	unication Software: Fi	actory La	Alk Linx Rung 0 of 16 APP	

Figure 4.1.1

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Operate function blocks

2. Set and monitor the variables of each AOI in "Program Parameters and Local Tags" window.

V Storage OK	s 🕨 No Edits	2	4 > Favorites Add-On	Alarms Bit Timer/Co	unter Input/Output Compar	e Compute/Math Move	Logical File/Misc. F	Te/Shift Sequencer F		
er Organizer 🗸 🦞	× MainProgram - MainR	outine 📿 Program Para	meters and Local Tags - M	ainProgram 🗙 🦪 Co	ntroller Tags - E2 AC(contro	ller)	-		1	
	Soone: L MainProgram	Show: Al Tags					Enter Name	Filter	1	
ontroller E2_AC	Mana and	United and the second	· Farry Mark	· Chile	Data Tura	Deservation	Constant			
Controller Tags		local	Force Mask	- Style	H ACOMAA	LIIMINI MILPOCYCTE	Constant		Properties	
Controller Fault Handler	h have	Local	1	1	HINKIN ANKINO AVIC	LINAL MICROSTITE			HE 및 A THE	Atended Properties
Power-up Handler	P NAKS	Local	[]	1/	PIWEIN_MIKKU_AKIS	PHYVIN IVINKOSYSTEM			A General	LACOMBA
MainTask	nConnectFaulted	Local	0	Decimal	BOOL				Description	HIWIN MIKROSVST
MainProgram	hData_Length	Local	0	Decimal	INI				Usage	Local
Parameters and Local Tags	hDeceleration	Local	0	Decimal	DINT				Type	Base
MainRoutine	hDirection	Local	0	Decimal	BOOL				Alias For	
Unscheduled	hEMAH	Local	0	Decimal	BOOL				Base Tag	
Ungrouped Axes	hEMAJ	Local	0	Decimal	BOOL				Data Type	H_ACOMM
larm Manager	hEMAM	Local	0	Decimal	BOOL				Scope	MainProgram
Alarms	hEMAR	Local	0	Decimal	BOOL				External Access	Kead/Write
L Alarm Definitions	hEMAS	Local	0	Decimal	BOOL				Coortant	No
sets	hEMASD	Local	0	Decimal	BOOL				Required	140
D Configuration	bEMASR	Local	0	Decimal	BOOL				Visible	
5069 Backplane	HEMAT	Local	0	Decimal	ROOL				Alarms	0
[0] 5069-L330ERM E2_AC	h ENDAG	Local	0	Decimal	BOOL				> Data	
A1, Ethernet	I CHER D	Local	0	Decimal	BOOL				Produced Connect	rtion
5069-L330ERM E2_AC	hEMDK	Local	0	Uecimal	ROOL				Consumed Conne	rction
L 62 Ethemat	hEMDW	Local	0	Decimal	BOOL				 Parameter Conne 	ections (0:0)
5069-L330ERM E2 AC	hEMSF	Local	0	Decimal	BOOL					
	hEMSO	Local	0	Decimal	BOOL					
	hEParmRead_Single	Local	0	Decimal	BOOL					
	hEParmWrite_Single	Local	0	Decimal	BOOL					
	♦ hErrCode	Local	0	Decimal	INT					
	hHomeMsgWrite	Local	()	()	MESSAGE					
	b hHomeOffset	Local	0	Decimal	DINT					
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3. In "MainProgram" window, right-click the contact switch of **H_MSO** and select **Toggle Bit** to enable the motor.



Figure 4.1.3

MD46UE01-2412

Operate function blocks

4. Complete the variables setting of **H_MAH** in "Program Parameters and Local Tags" window, including Method, SearchSwitchSpeed, SearchZeroSpeed, Acceleration, and HomeOffset.



Figure 4.1.4



Figure 4.1.5

MD46UE01-2412

E2 EtherNet/IP Drive Complete Setup with Rockwell Studio 5000

Operate function blocks

5. In "MainProgram" window, right-click the contact switch of **H_MAH** and select **Toggle Bit** to start executing homing.

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Note: Before executing the homing procedure, enable the motor first.

Figure 4.1.6